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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification n<sup>4</sup> : A61H 3/00, 3/02, A45B 7/00 A45B 9/02</p>	<p>A1</p>	<p>(11) International Publication Number: <b>WO 89/ 00039</b> (43) International Publication Date: 12 January 1989 (12.01.89)</p>
<p>(21) International Application Number: PCT/AU88/00243 (22) International Filing Date: 6 July 1988 (06.07.88) (31) Priority Application Number: PI 2963 (32) Priority Date: 6 July 1987 (06.07.87) (33) Priority Country: AU  (71)(72) Applicant and Inventor: COOGAN, Brian, James [AU/AU]; 128 Channel Highway, Taroom, TAS 7053 (AU). (74) Agent: CHRISTIANSEN, John; Smith Shelston Beadle, 207 Riversdale Road, P.O. Box 410, Hawthorn, VIC 3122 (AU).  (81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent),</p>		<p>SE (European patent), US.  <b>Published</b> <i>With international search report.</i></p>
<p>(54) Title: PAIR OF CRUTCHES CONVERTIBLE TO A WALKING STICK</p> <p>(57) Abstract</p> <p>Mobility apparatus for people with disabilities, rehabilitates or elderly persons includes a crutch element (10) usable as an elbow crutch when a pivoting elbow portion (18) is in a first position. When the elbow portions (18, 118) of two crutch elements (10, 100) are swung to second positions, the two elements (10, 100) may be attached together to form a walking stick (34) in which crutch element handle portions (16, 116) together form a handle (36) for the walking stick (34).</p> <div data-bbox="1047 1155 1291 1858"> </div>		

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- 1 -

## 1                   PAIR OF CRUTCHES CONVERTIBLE TO A WALKING STICK

2

3           This invention is directed towards those active  
4 disabled persons, persons rehabilitating from injury or  
5 illness, and elderly people who rely on a walking stick or  
6 on two sticks and elbow crutches as essential aids for  
7 personal mobility.

8           At certain times, inconspicuous sticks are favoured,  
9 particularly when the user is either indoors or in another  
10 confined space, such as in motor vehicles and aircraft.

11          At other times crutches are preferred as they enable  
12 the user to enjoy relatively quick movement over longer  
13 distances, and also provide additional comfort and support  
14 when negotiating steps without handrails, kerbs and uneven  
15 terrain. However, when indoors crutches are often not  
16 needed and, in fact, become quite cumbersome and untidy in  
17 such confined areas.

18          Until now, the major problem regularly faced by a user  
19 was the unavailability of the other appliance when an  
20 immediate need arose.

21          In addressing this problem, the inventor - himself  
22 paralysed in both legs since childhood - has succeeded in  
23 incorporating both appliances in a single, compact unit.

24          As anticipated, the unique characteristics of the  
25 invention has meant enhanced freedom of movement at the whim  
26 of the user - that is to say, transfer from the "stick" mode  
27 to the "crutch" (or "recreational") mode can be effected  
28 almost immediately.

29          As the inventor has readily confirmed, the increased  
30 exercise which resulted from using the apparatus yielded a  
31 corresponding increase in personal fitness and well-being.  
32 Its recreational potential should not therefore be  
33 underestimated.

34          Referring firstly to Fig. 1, there is shown a crutch  
35 element 10 in the form of an elbow crutch.

36          Crutch element 10 has a leg portion 12, an arm portion  
37 14, a handle portion 16, an elbow portion 18 and an elbow-  
38 surrounding portion 20.

- 2 -

1 Portions 12,14 and 16 are rigidly connected together,  
2 whilst elbow portion 18 is rotatable about point 22 so that  
3 it may lie adjacent arm portion 14, in a second position.

4 The invention provides mobility apparatus for disabled  
5 or elderly persons, including a crutch element (10) having a  
6 portion (18) movable from a first position, in which the  
7 element (10) may be used as a crutch, and a second position,  
8 in which the element (10) may be attached to a second crutch  
9 element (100) to form a walking stick (34).

10 An embodiment of the invention, which may be  
11 preferred, will be described in detail hereinafter with  
12 reference to the accompanying drawings, in which:-

13 Figure 1 is a perspective view of one 'crutch' element;

14 Figure 2 is a section along the lines 2 - 2 of Figure  
15 1;

16 Figure 3 is a perspective view of the 'walking stick'  
17 combination of two Figure 1 elements;

18 Figure 4 is a section along the lines 4 - 4 of Figure  
19 2;

20 Figure 5 is an illustration of the 'walking stick'  
21 combination used as a seat;

22 Figure 6 is an illustration of the 'walking stick'  
23 combination used as a walking stick; and

24 Figure 7 is an illustration of the 'crutch' element  
25 used as an elbow crutch.

26 In the illustrated first position, a stop (not shown) is  
27 provided to impart rigidity to the arm portion/elbow portion  
28 combination when the element 10 is being used as an elbow  
29 crutch.

30 A moulded foot 24 is located at the base of leg 12, and  
31 fastening means 26 in the form of a strap - preferably a  
32 moulded rubber strap - is located near the base of leg 12.  
33 Another fastening means 28 also in the form of a strap -  
34 again preferably a moulded rubber strap - is located on  
35 elbow support 20.

36 Leg 12 is preferably formed from an aluminium  
37 extrusion, with the preferred cross-section shown in Fig. 2.  
38 Other suitable materials may of course be used, and it may

- 3 -

1 be desirable to place on flat face 30 means for  
2 interengagement with the flat surface of a second crutch  
3 element for the purpose discussed hereinafter. On example  
4 of interengagement means could be mating recesses and  
5 protrusions, such as shallow dish regions and low-relief  
6 protrusions.

7 A suggested alternative material for leg 12 is a  
8 plastics material from which the entire element 10 could be  
9 made. In the illustrated embodiment, the handle 16 is  
10 formed from a moulded closed cell foam, and the elbow  
11 portion 18 by structural foam with a metal core. Arm  
12 portion 14 is intended to be a powdercoated diecasting.

13 Straps 26,28 could be replaced by other fastening or  
14 clamping means. Adhesive reflective tape 32 may be located  
15 on elbow portion 18 for safety.

16 The element 10 of Fig. 1 may be used as an elbow crutch  
17 or as one of a pair of such crutches.

18 Figure 3 shows a walking stick 34 formed from a  
19 combination of elements 10. For identification, the second  
20 element is designated 10. In at least all essential  
21 particulars, element 100 is identical to element 10.

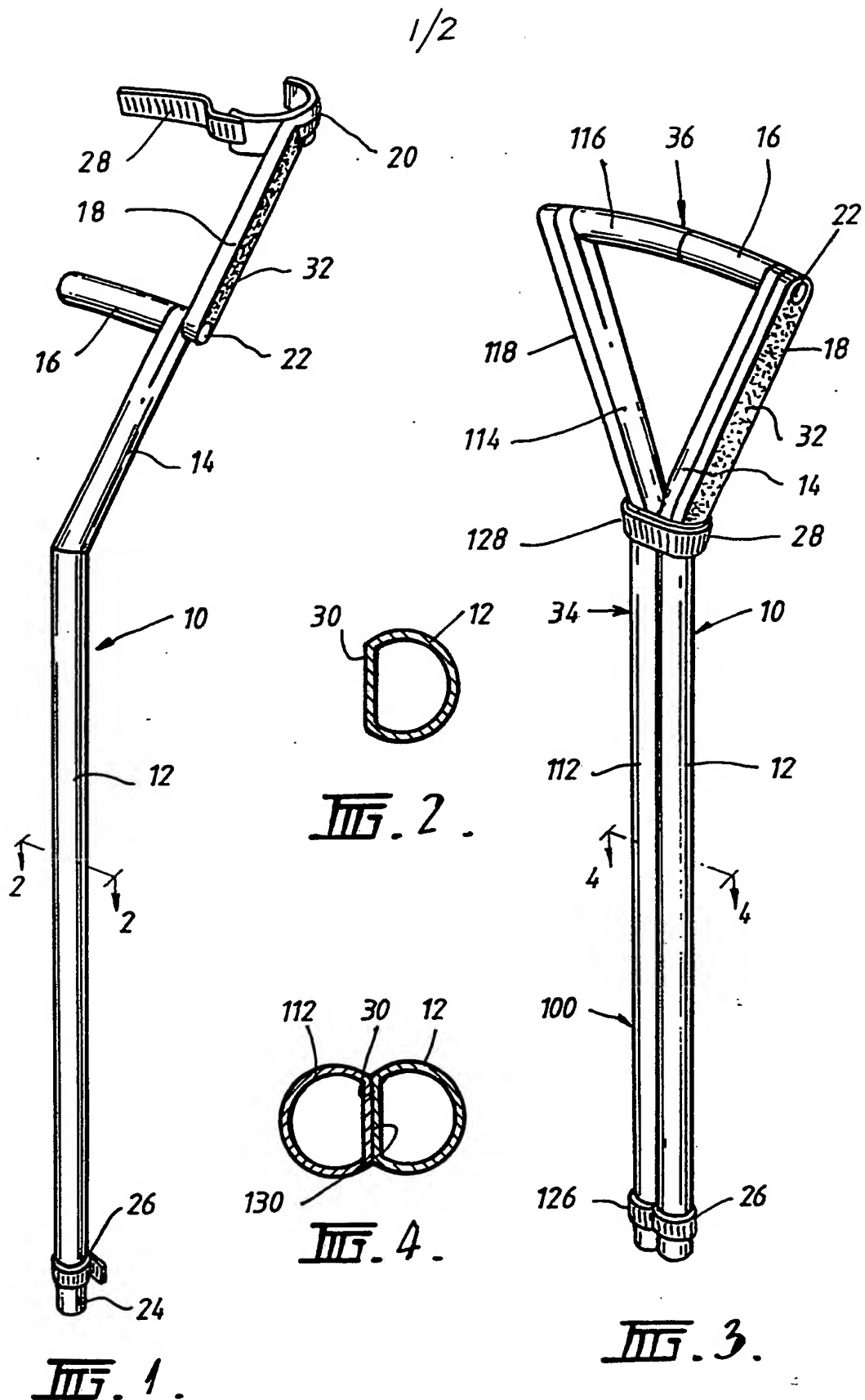
22 Flat faces 30,130 of legs 12,112 (Figure 4) abut.  
23 Elbow portions 18,118 are each folded into a second position  
24 adjacent arm portions 14,114. Fastening means 26, 126 are  
25 attached, as are fastening means 28,128 thereby clamping  
26 elements 10,100 together and forming a single handle 36 from  
27 handle portions 16, 116.

28 In the combination 34 of Figure 3, the crutch elements  
29 10,100 may be used as a walking stick in those confined areas  
30 referred to hereinbefore. Alternatively, the elements 10,  
31 100 may be used as a seat. Figures 5, 6 and 7 illustrate,  
32 respectively, the walking stick, seat and crutch modes of  
33 this embodiment of the invention.

- 4 -

1 Claims

- 2 1. Mobility apparatus for disabled or elderly persons,  
3 including a crutch element (10) having a portion (18)  
4 movable from a first position, in which the element (10) may  
5 be used as a crutch, and a second position, in which the  
6 element (10) may be attached to a second crutch element  
7 (100) to form a walking stick (34).
- 8 2. Mobility apparatus according to claim 1, wherein  
9 fastening means (26,28) are provided to co-operate with  
10 fastening means (126,128) on said second crutch element  
11 (100) to effect attachment therebetween.
- 12 3. Mobility apparatus according to claim 1 or 2, wherein  
13 leg portions (12, 112) of the said crutch elements (10, 100)  
14 have faces (30,130) adapted to abut each other when said  
15 elements (10, 100) are attached together.
- 16 4. Mobility apparatus according to any preceding claim,  
17 wherein said movable portion (18) is a portion pivotally  
18 attached to a rigid portion (14) of said element (10) such  
19 that in said first position it exhibits rigidity in one  
20 angular direction for use of said element (10) as a crutch.
- 21 5. Mobility apparatus according to claim 3 or 4, wherein  
22 one of said fastening means (26) is located near the base of  
23 said leg (12) and the other (28), when said portion (18) is  
24 in said second position, is located near the top of said  
25 leg.
- 26 6. Mobility apparatus according to any preceding claim,  
27 wherein said crutch element (10) has a handle portion (16)  
28 which, when said elements (10, 110) are attached, forms with  
29 handle portion 116 of crutch element 110, a handle (36) for  
30 said walking stick (34).
- 31 7. Mobility apparatus according to any one of claims 3 to  
32 7, when the cross-section of said leg (12) is substantially  
33 a circle, with one flat portion (30).





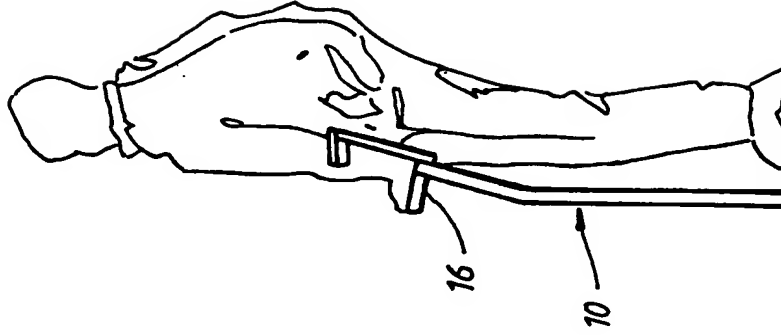


Fig. 7.

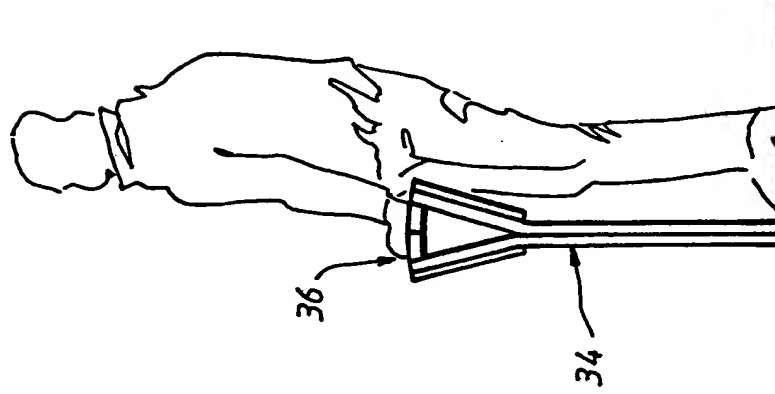


Fig. 6.

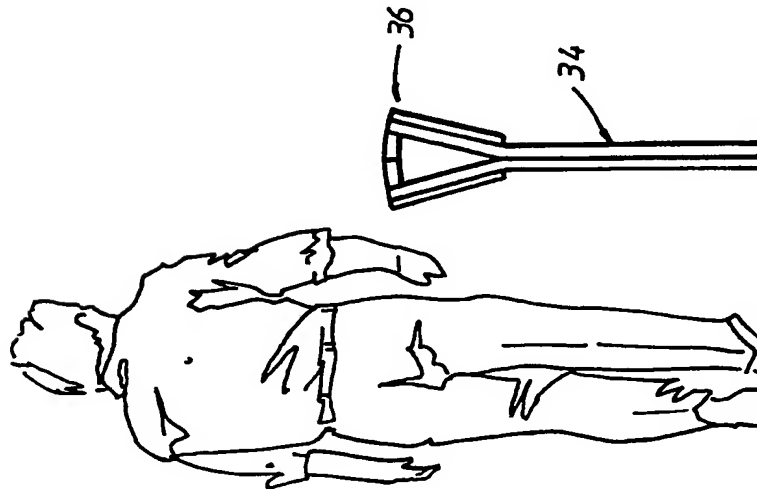


Fig. 5.

# INTERNATIONAL SEARCH REPORT

International Application No PCT/AU 88/00243

## I. CLASSIFICATION OF SUBJECT MATTER : I specify classification symbols which indicate the

According to International Patent Classification (IPC) or to both National Classification and IPC

Int. Cl.<sup>4</sup> A61H 3/00, 3/02, A45B 7/00, 9/02

## II. FIELDS SEARCHED

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Documentation Searched other than Minimum Documentation  
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## III. DOCUMENTS CONSIDERED TO BE RELEVANT \*

Category \* : Citation of Document, \*\* with indication, where appropriate, of the relevant passages \*\*

Relevant to Claim No. \*\*

- |   |   |           |
|---|---|-----------|
| X | US,A, 3032048 (HOFFMANN) 1 May 1962 (01.05.62)  | (1-3,6,7) |
| A | US,A, 2409365 (LAMB) 15 October 1946 (15.10.46)   |           |
| A | Derwent Abstract Accession No. D5262X/16,<br>BE,A, 835594 (KERRIEN) 1 March 1976 (01.03.76)                       |           |
| A | Derwent Abstract Accession No. 87-057596/09,<br>Class P33, DE,A, 3530387 (BITTNER) 26 February 1987<br>(26.02.87) |           |
| A | US,A, 3208461 (IRWIN) 28 September 1965 (28.09.65)  |           |

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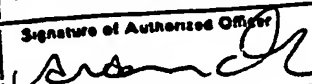
## IV. CERTIFICATE

Date of the Actual Completion of the International Search  
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Date of Making of this International Search Report

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